

CLAIMS

What is claimed is:

- 1 1. A method of restarting resource reservation protocol (RSVP) processes in multiple
2 network devices, the method comprising the computer-implemented steps of:
3 entering a recovery mode;
4 sending a Hello message to a first neighbor RSVP node, wherein the Hello message
5 comprises a non-zero Recovery Time value;
6 completing the recovery mode;
7 sending a Hello message to the first neighbor RSVP node, wherein the Hello message
8 comprises a Recovery Time value of zero.
- 1 2. A method as recited in Claim 1, further comprising the steps of:
2 receiving, from a second neighbor RSVP node, a Hello message having a non-zero
3 Recovery Time value;
4 storing information specifying that the second neighbor RSVP node is in a recovery
5 mode.
- 1 3. A method as recited in Claim 2, further comprising the steps of:
2 receiving, from the second neighbor RSVP node, a Hello message having a zero
3 Recovery Time value;
4 storing information specifying that the second neighbor RSVP node is in a normal
5 mode.
- 1 4. A method as recited in Claim 2, wherein the step of creating and storing second
2 information further comprises the steps of:
3 receiving an RSVP PATH message that contains a Recovery Label;
4 forwarding the PATH message to a downstream node with the Recovery Label only
5 in response to determining that the PATH message is being sent to a node that
6 is in recovery mode.

1 5. A method as recited in Claim 4, further comprising forwarding the PATH message to
2 a downstream node with a Suggested Label in response to determining that the PATH
3 message is being sent to a node that is not in recovery mode.

1 6. A method as recited in any of Claims 4 or 5, wherein the determining step is
2 performed based on whether a Recovery Time value in a previously received Hello message
3 is non-zero.

1 7. A method of restarting RSVP processes in multiple network devices, the method
2 comprising the computer-implemented steps of:
3 entering a recovery mode;
4 sending a Hello message to a first neighbor RSVP node, wherein the Hello message
5 comprises a non-zero Recovery Time value;
6 completing the recovery mode;
7 sending a Hello message to the first neighbor RSVP node, wherein the Hello message
8 comprises a Recovery Time value of zero;
9 receiving, from a second neighbor RSVP node, a Hello message having a non-zero
10 Recovery Time value;
11 storing information specifying that the second neighbor RSVP node is in a recovery
12 mode;
13 receiving, from the second neighbor RSVP node, a Hello message having a zero
14 Recovery Time value;
15 storing information specifying that the second neighbor RSVP node is in a normal
16 mode;
17 receiving an RSVP PATH message that contains a Recovery Label;
18 forwarding the PATH message to a downstream node with the Recovery Label only
19 in response to determining that the PATH message is being sent to a node that
20 is in recovery mode;

21 forwarding the PATH message to a downstream node with a Suggested Label in
22 response to determining that the PATH message is being sent to a node that is
23 not in recovery mode.

1 8. A computer-readable medium carrying one or more sequences of instructions for
2 restarting resource reservation protocol (RSVP) processes in multiple network devices,
3 which instructions, when executed by one or more processors, cause the one or more
4 processors to carry out the steps of:
5 entering a recovery mode;
6 sending a Hello message to a first neighbor RSVP node, wherein the Hello message
7 comprises a non-zero Recovery Time value;
8 completing the recovery mode;
9 sending a Hello message to the first neighbor RSVP node, wherein the Hello message
10 comprises a Recovery Time value of zero.

1 9. A computer-readable medium as recited in Claim 8, further comprising instructions
2 for performing the steps of:
3 receiving, from a second neighbor RSVP node, a Hello message having a non-zero
4 Recovery Time value;
5 storing information specifying that the second neighbor RSVP node is in a recovery
6 mode.

1 10. A computer-readable medium as recited in Claim 9, further comprising instructions
2 for performing the steps of:
3 receiving, from the second neighbor RSVP node, a Hello message having a zero
4 Recovery Time value;
5 storing information specifying that the second neighbor RSVP node is in a normal
6 mode.

1 11. A computer-readable medium as recited in Claim 9, wherein the step of creating and
2 storing second information further comprises instructions for performing the steps of:
3 receiving an RSVP PATH message that contains a Recovery Label;
4 forwarding the PATH message to a downstream node with the Recovery Label only
5 in response to determining that the PATH message is being sent to a node that
6 is in recovery mode.

1 12. A computer-readable medium as recited in Claim 11, further comprising instructions
2 for forwarding the PATH message to a downstream node with a Suggested Label in response
3 to determining that the PATH message is being sent to a node that is not in recovery mode.

1 13. A computer-readable medium as recited in any of Claims 11 or 12, wherein the
2 determining step is performed based on whether a Recovery Time value in a previously
3 received Hello message is non-zero.

1 14. An apparatus for restarting resource reservation protocol (RSVP) processes in
2 multiple network devices, comprising:
3 means for entering a recovery mode;
4 means for sending a Hello message to a first neighbor RSVP node, wherein the Hello
5 message comprises a non-zero Recovery Time value;
6 means for completing the recovery mode;
7 means for sending a Hello message to the first neighbor RSVP node, wherein the
8 Hello message comprises a Recovery Time value of zero.

1 15. An apparatus as recited in Claim 14, further comprising:
2 means for receiving, from a second neighbor RSVP node, a Hello message having a
3 non-zero Recovery Time value;
4 means for storing information specifying that the second neighbor RSVP node is in a
5 recovery mode.

1 16. An apparatus as recited in Claim 15, further comprising:
2 means for receiving, from the second neighbor RSVP node, a Hello message having a
3 zero Recovery Time value;
4 means for storing information specifying that the second neighbor RSVP node is in a
5 normal mode.

1 17. An apparatus as recited in Claim 15, wherein the means for creating and storing
2 second information further comprises:
3 means for receiving an RSVP PATH message that contains a Recovery Label;
4 means for forwarding the PATH message to a downstream node with the Recovery
5 Label only in response to determining that the PATH message is being sent to
6 a node that is in recovery mode.

1 18. An apparatus as recited in Claim 17, further comprising means for forwarding the
2 PATH message to a downstream node with a Suggested Label in response to determining
3 that the PATH message is being sent to a node that is not in recovery mode.

1 19. An apparatus as recited in any of Claims 17 or 18, wherein the means for determining
2 is based on whether a Recovery Time value in a previously received Hello message is non-
3 zero.

1 20. An apparatus for restarting resource reservation protocol (RSVP) processes in
2 multiple network devices, comprising:
3 a network interface that is coupled to the data network for receiving one or more packet
4 flows therefrom;
5 a processor;
6 one or more stored sequences of instructions which, when executed by the processor, cause
7 the processor to carry out the steps of:
8 entering a recovery mode;

9 sending a Hello message to a first neighbor RSVP node, wherein the Hello message
10 comprises a non-zero Recovery Time value;
11 completing the recovery mode;
12 sending a Hello message to the first neighbor RSVP node, wherein the Hello message
13 comprises a Recovery Time value of zero.

1 21. An apparatus as recited in Claim 20, further comprising sequences of instructions for
2 performing the steps of:
3 receiving, from a second neighbor RSVP node, a Hello message having a non-zero
4 Recovery Time value;
5 storing information specifying that the second neighbor RSVP node is in a recovery
6 mode.

1 22. An apparatus as recited in Claim 21, further comprising the steps of:
2 receiving, from the second neighbor RSVP node, a Hello message having a zero
3 Recovery Time value;
4 storing information specifying that the second neighbor RSVP node is in a normal
5 mode.

1 23. An apparatus as recited in Claim 21, wherein the step of creating and storing second
2 information further comprises the steps of:
3 receiving an RSVP PATH message that contains a Recovery Label;
4 forwarding the PATH message to a downstream node with the Recovery Label only
5 in response to determining that the PATH message is being sent to a node that
6 is in recovery mode.

1 24. An apparatus as recited in Claim 23, further comprising forwarding the PATH
2 message to a downstream node with a Suggested Label in response to determining that the
3 PATH message is being sent to a node that is not in recovery mode.

1 25. An apparatus as recited in any of Claims 23 or 24, wherein the determining step is
2 performed based on whether a Recovery Time value in a previously received Hello message
3 is non-zero.